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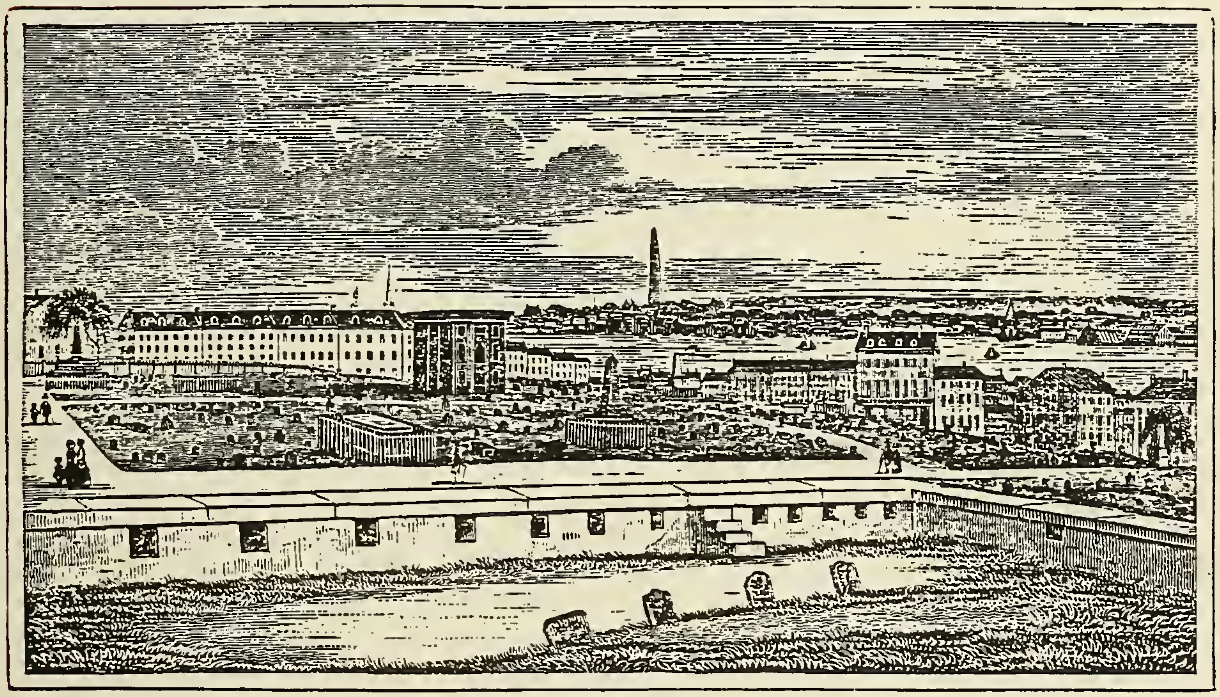
THE BOSTON EXPERIENCE: A MANUAL FOR HISTORIC BURYING GROUNDS PRESERVATION



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RAYMOND L. FLYNN,
MAYOR

BOSTON PARKS AND
RECREATION DEPARTMENT
WILLIAM B. COUGHLIN,
COMMISSIONER

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THE BOSTON EXPERIENCE:

A MANUAL FOR HISTORIC BURYING GROUNDS PRESERVATION

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1630.

MARCH 1988

CITY OF BOSTON
RAYMOND L. FLYNN, MAYOR

BOSTON PARKS AND RECREATION DEPARTMENT
WILLIAM B. COUGHLIN, COMMISSIONER

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CREDITS

This manual has been adapted from materials produced as part of the Historic Burying Grounds Initiative, Parks and Recreation Department, City of Boston by:

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Introduction

INTRODUCTION

Tremendous demands face old burying grounds. In providing sanctuary for the dead they serve a sacred function. Their commemorative role is artistic; old cemeteries are sculpture gardens needing care befitting outdoor museums. Historically, burying grounds are large archives, requiring careful conservation worthy of the rare and wondrous collections of our individual and collective pasts. Finally, cemeteries are scenic landscapes to be enjoyed and cared for as urban open space or rural parklands.

The importance of historic burying grounds results in preservation actions which can be in conflict. Cultural values create a sense of urgency to restore individual monuments immediately. The responsibility of providing stewardship for irreplaceable resources, however, requires careful planning to ensure preservation of the historical context and physical structure as well as the artifacts. Each burying ground is unique. Plans and implementation strategies will differ widely as they integrate sanctuary, art, history, and landscape but always with a goal of preserving the integrity of the whole.

The Boston Experience

In Boston as the American Bicentennial (1976) approached, the historic burying grounds became the subject of controversy. To many observers, leaning, soiled markers, out-of-plumb walls, worn paths and opened tombs were a sign of neglect and disgrace. To others, particularly in the growing preservation movement, the actual process of renewing the old cemeteries threatened to obliterate much of the value of their resources unless the preservation efforts could be very carefully conceived and implemented.

The Historic Burying Grounds Initiative (HBGI) grew out of the awareness that the effects of age, environment, and deferred maintenance posed an imminent threat of loss to the City-owned historic burying grounds and thus to the heritage of Boston, New England, and the nation. But, a sense of urgency was tempered by the awareness that expedient solutions too often ultimately compound the problem. Thus, in the mid-1970's, the City declared a moratorium on burying ground repairs or restoration. The Boston Parks and Recreation Department (BPRD), owner of the properties, then joined forces with the Boston Landmarks Commission, the Bostonian Society, the Massachusetts Historical Commission and others to begin an ad hoc collaborative effort to address the issues comprehensively. What started as a "shopping list" of concerns, developed by an informal committee, turned into inventory and maintenance techniques by 1983.

A comprehensive master plan was commissioned by the BPRD in 1985. The end of 1986 marked publication of this document and the start of full-scale implementation of the plan's top priorities. Complete conservation of the gravestones and tombs, repair and rebuilding of structures such as walls, and landscaping rehabilitation efforts will take several years and require an estimated $6,000,000.

The City calculates that that it has reached 30% of its goal for comprehensive preservation of its historic burying grounds. The project is supported by public and private funding from a broad range of sources. The historic cemetery preservation project, as is generally the case, continually faces funding needs, particularly in the area of project management. A listing of supporters includes individuals, historical societies, abutters, corporations, City of Boston Office of Capital Planning, and public preservation agencies. The BPRD and "Friends" of the Historic Burying Grounds Initiative must make the argument for preserving places and things which enrich our lives and honor our ancestors in a world of limited resources and competing needs.

History

Boston's historic burying grounds may very well comprise the largest collection of historic cemeteries owned by any U.S. municipality. The sixteen sites were established from 1630 to 1841; several were active well into the 20th century. Ten date from the Colonial period; of these, seven were established in the 17th century. The burying grounds are located in neighborhoods city-wide and three are sites along the Freedom Trail.

The complete list of historic cemeteries, all classified now as inactive, all under jurisdiction of the Boston Parks and Recreation Department follows:

Bennington Street, 1838 — East Boston
Bunker Hill, 1807 — Charlestown
Central, 1754 — Boston Common
Copp's Hill, 1659 — North End
Dorchester North, 1634 — Uphams Corner
Dorchester South, 1814 — Lower Mills
Eliot (Eustis Street), 1630 — Roxbury
Granary, 1660 — Downtown
Hawes/Union, 1816/41 — South Boston (counted as two sites)
King's Chapel, 1630 — Downtown
Market Street, 1764 — Brighton
Phipp's Street, 1630 — Charlestown
South End, 1810 — Washington Street
Walter Street, 1711 — Roslindale
Westerly, 1683 — West Roxbury

Boston's 20 acres of historic burying grounds hold more than 12,000 grave markers honoring Puritans and Patriots whose names are cited in every American history textbook. The City's Puritan-era gravestones testify to the

stone carvers' art and afford a rare glimpse of life in the seventeenth century, from which virtually nothing else remains in context. Collectively, Boston's graveyards reflect views of life and death over 350 years. They tell of the growth of Boston and its neighborhoods. Prominent citizens and "just plain folks" are represented at each site, gathered in perpetuity.

Summary Notes on This Manual

Historic cemetery preservation is still an emerging field, stimulated by the urgent need to safeguard irreplaceable cultural resources threatened by imminent loss. As suggested above, cemetery preservation and stewardship combine elements of museum conservation, archival collections management, and architectural and landscape restoration with a good measure of both common sense and cautious experimentation.

The City of Boston's collection of burying grounds, extremely rich, old and fragile, has created a planning and field laboratory opportunity. It is the intent of this manual to share our experiences in the planning and implementation of cemetery preservation activities. Although each cemetery's preservation needs will differ, we hope that the Boston experience will provide help and guidance to those working in the field.

This manual contains methodologies employed in Boston—and no quick fixes. With material conservation in particular, and preservation in general, the old adage rings true—haste can make waste. With forethought and care, 300-year-old cemeteries will extend their lifespans into the future. Though it contains some basic "how-to" information, this manual is primarily a presentation of the "why-tos" of burying ground preservation. We intend this manual as a catalyst for action, a point of departure. We hope to add to the resources and materials available and to stimulate discussion and practices that will further the art of cemetery preservation.

Getting Started

GETTING STARTED

Successful historic burying ground preservation involves becoming aware of the complexity of issues. The first step in the preservation process calls for identifying all foreseeable problems. Begin with informal meetings to assess the situation. Concerned parties should include the owner of the burying ground and, if different, those initiating preservation efforts, those responsible for continuing maintenance of the site(s), and preservation professionals. Technical advice can be provided by the staff of local preservation commissions or state preservation agencies. To simplify looking at the many issues involved the following three categories and attendant questions are useful:

> Markers: How old are the markers, tombs and memorials? Are several kinds of stone or other materials present? What do their conditions appear to be? What significance do they possess in terms of both artistry and social history? Has an inventory or a history of the burying ground been prepared?

Site Features: What is the character of the setting? Is it simple and rural, with tall unmowed grass and informally placed trees; or more formal, with a designed path system, planting plan, and features such as ornamental gates or signs? Is the topography relatively flat or hilly? Are views into, within, or out from the cemetery important features?

Does the cemetery exhibit a unified style charateristic of development over a short period of time, or show features that indicate long-term evolution, perhaps over more than a century? Do accretions over time add to or detract from the character of the site? What are the general conditions of trees, fences, walls, paths, signs and other site features?

Management Issues: Who owns and who maintains the cemetery? What regulatory agencies have jurisdiction such as a local historical commission or state archaeologist? Are access and security adequate? How many visitors does it receive? Is over-use or under-use a concern? Is increased public awareness or site interpretation needed? Who will pay for preservation activities? Who can supervise or perform them? What about other kinds of support such as formation of a Friends of the burying ground group?

A "Shopping List" Approach to Planning

As staff members of the Boston Parks Department and Boston Landmarks Commission worked with local preservation agencies and advocacy groups to pinpoint preservation needs in the historic burying grounds, a comprehensive list and interrelated areas of concerns, began to emerge, including:

Marker/Tomb Conservation
- extent and types of damage - grave marker inventory
- philosophy of conservation, policy developed
- which stones to be selected for repair, restoration
- storage of damaged stones/fragments - where, who, how
- methods of mowing, clipping to reduce damage
- proposals for conservation treatments - specific materials: slate, brownstone, granite, brick, marble; how to evaluate
- recutting and replacement - options?

Protective Measures
- grave marker inventory
- National Register listing
- gravestone rubbing policy/prohibition
- access to funding, public education and involvement
- Mass. state laws protecting graveyards, grave markers; adopt local ordinance to reinforce
- reproduction/removal of significant gravestones - appropriate?

Vandalism/Security - Misuse of grounds (vandalism, hangouts, homeless)
- fencing
- lighting
- tree canopy
- police surveillance
- neighbors, abutters
- regulatory signs
- supervision/enforcement
- repair policies: graffiti, tombs, overturned/broken stones

Landscaping and Site Improvements - Aesthetics/Physical Condition/Access and Circulation
- pruning, feeding, care of mature trees
- introduction of new trees, seasonal plantings (flowers)?
- grass/sod/ground cover? length?
- effects of shade trees on gravestones (i.e., roots, visibility, soiling)

- soil erosion, compacting problems
- historical accuracy - retained, restored landscape elements
- fencing: decorative iron - repair/replace, same/other, make taller
  - stone walls - repair/replace, solid?, type of re-pointing
- gates
- stone steps and gateways
- handicapped access
- pathways: materials - best for maint./upkeep/longevity/safety historical accuracy?
  - location - least damage to ground, stones, etc., logical circulation pattern
- lighting: special effects? floodlighting, effect on adjacent structures, vandalproof, location, fixtures, attachments, cost of electricity
- benches: any at all, inside vs. outside, if so, type and location
- trash receptacles: appearance, location
- interpretive markers, signage
- safety factor - rodent extermination
- lock vs. open - ease of visitation, access to keys

Engineering
- deterioration of retaining walls, tomb structures
- drainage problems
- irrigation?
- on-site maintenance structures
- safety factors - walls along public ways, open tombs, ground subsidence

Interpretation - Objectives for an informational signage system
- value as public education, fundraising tool; protection of historic resources
- existing markers and plaques on-site? off-site display of original gravestones and replacement with reproductions on-site?
- brochures - paper pick-up?

Maintenance - Coordinate with landscaping restoration/gravestone conservation
- trash removal
- mowing techniques - efficiency vs. precision
- adequate scheduling
- clipping, weeding, etc.
- specialized training of personnel for simple conservation techniques: fragment collection, resetting sunken/tilted stones

Fundraising/Manpower Support and Resources
- State Historic Preservation Organization - Mass. Historical Comm.
- potential funding sources - foundations, charitable trusts, descendants, corporate donors, City Budget, federal govt.
- who pays for what (matching funding with needs)
- phasing projects as funding is available
- volunteer sources - "Friends" groups, youth groups, local civic organizations, et al
- local businesses/contractors willing to donate services or supplies
- professional project management - documentation, fundraising, implementation, record-keeping

Developing a Preservation Philosophy

Simultaneous with development of the shopping list, various questions arose which determined the approach the Boston Initiative would take in restoring the burying grounds:

- What kinds of information should be collected to formulate a plan for restoration?
- How should this data be standardized for easy recording process, access and consistency?
- Should restoration include recutting now-illegible markers?
- What are the criteria for choosing stones for repair? How many?
- Should exceptionally significant stones be reproduced and removed from their original location?
- Can originals removed from the burying ground be stored or put on exhibit in a secure, publicly accessible location near the site of origin?
- What about reproduction for commercial purposes?
- What kinds of information are needed for public education?
- Should a burying ground be restored to one period in time or should it show a continuum?
- What additions should be made for today's visitors such as benches or interpretive markers?
- What about regulations? Should picnicking, gravestone rubbings, or dogs be allowed?
- Is handicapped access adequate?

- Are the plantings in keeping with the overall or original site design?
- Are some maintenance practices harmful to the markers such as scraping the markers with lawnmowers; removing graffiti with harsh chemicals, abrasives, or high pressure water; or use of pesticides, herbicides, or fertilizers, around gravestones?

Answers to these questions provide the foundation for a preservation philosophy.

Developing a Preservation Strategy

The process of developing the shopping list of issues and the philosophical questions regarding preservation serves to put all the cards on the table. Then the real program work can begin:

- Grave marker inventory preparation
- Comprehensive site/program/management planning
- Fundraising and constituency-building
- Gravestone and site preservation activities
- Ongoing mananagement and maintenance

Happily for Boston, increased public and private concern for responsible historic cemetery preservation coincided with the availability

of specific planning resources. In 1983 the City teamed up with a local preservation organization and applied for and received a Yankee Intern. In that first summer of the National Trust for Historic Preservation /Yankee Publishing Company student stipend program, the Boston burying grounds intern conducted a stone-by-stone inventory of King's Chapel Burying Ground (1630), the oldest cemetery in central Boston. With direction from the Boston Landmarks Commission the intern adapted the Commission's building survey form and created the methodology that would be used to inventory all of Boston's grave markers. By utilizing seasonal employees, particularly student interns each summer, the inventory was completed in 1987.

Concurrently in 1983, the Boston Parks and Recreation Department created a dedicated historic burying grounds maintenance crew. This is a crew of 2-4 men (it varies seasonally) under the direction of a year-round foreman. The establishment of this crew marked a big step in attaining a new standard of ground care, including specialized hands-on, labor intensive work practices dictated by the gravestones. Practices such as the use of chemical weed-killers, and salting or burning to retard vegetation in hard to reach areas around stones have been discontinued. Instead of mowing right up to the stones, weed whips are now used for trimming in cemeteries. Mowing and trash pick-up are scheduled regularly. Neighborhood cemeteries are locked for security purposes and opened by appointment.

In 1984 a local foundation expressed an interest in helping with deferred capital improvements in Boston's historic cemeteries. The Landmarks Commission and the Parks Department applied to them and received a pilot burying ground preservation planning/stone conservation grant, matched by a research and development grant from the Preservation Projects Fund sponsored by the Massachusetts Historical Commission. This ended the moratorium established a decade or so before, whereby the City had denied capital projects in historic cemeteries due to lack of accompanying professional, comprehensive planning.

The pilot program, named the Historic Burying Grounds Initiative (HBGI), consisted of site analysis of and comprehensive planning for landscaping and structures in five Colonial period burying grounds. It was conducted during the first half of 1985, and it was accompanied by the development of a stone conservation pilot program in King's Chapel Burying Ground. Re-application was then made to the initial funding sources to finish the master plan for the remaining eleven neighborhood historic cemeteries. King's Chapel which received funds for emergency gravestone conservation in phase two, again served as the demonstration model. re-application was made to the initial funding sources. The second phase culminated in the publication of a three-volume master plan in December 1986, for preservation of each of Boston's sixteen historic cemetery sites, and a much improved model site (King's Chapel Burying Ground).

The beginning of 1988 marks the estimated 30% point in completion of comprehensive rehabilitation for City-owned historic cemeteries in Boston. Implementation is guided by line item capital budgets for each site established in the master plan. The budgets set priority for improvements designated as "urgent", "immediate" and "future" projects.

Grave marker conservation in the context of Boston's sixteen sites and 12,000 extant gravestones and tombs begins with the emergency stabilization of threatened gravestones and tombs. Grave marker conservation is not detailed in the site master plans but is spelled out as an urgent priority for each site, along with matters of public safety such as retaining walls in danger of collapse or open tombs. Plans for grave marker conservation are developed from the stone-by-stone inventories for each site, in conjunction with field analysis.

Conclusion

Comprehensive planning is essential, though each city and town's or even each burying ground's needs vary. Responsible stewardship of sixteen burying grounds in Boston required a formal master plan, one which accomodates phased implementation over a number of years and which provides the basis for developing annual capital improvement budgets. For preservation of a single burying ground the planning product may not need

to be as formal. However, the process should be equally comprehensive. Every burying ground has a complex set of issues which are interrelated. Action addressing one problem in an isolated manner may create a different problem down the road. A very simple example would be using acid to remove graffiti with the result that it has made marble deteriorate to the point that carvings are damaged; or, planting trees whose root systems twenty years later will damage underground brick tombs.

A master plan is long-term. Designed to be future-oriented, it necessarily must allow for flexibility. Priorities change, so can philosophy, technology, and available support. The limitations of budget that necessitate proceeding with historic burying ground preservation in phases can be beneficial. Techniques developed through pilot and outdoor laboratory projects, on carefully chosen and then monitored gravestones and masonry tombs, are continually adding to our ability to care and plan for the future.

Grave Marker Inventory and Analysis

GRAVE MARKER INVENTORY AND ANALYSIS

A grave marker inventory is a key element in developing any burying ground preservation program. The inventory, in the form of a final report, provides a working document which contains accurate data about the number of grave markers, types of materials, historical and artistic significance, and existing conditions of the grave markers and of the burying ground site.

The challenge of an inventory is to amass various kinds of information in a format that can be adapted for many uses. In Boston, the need for consistency in dealing with sixteen geographically separate sites, and over 12,000 grave markers, was especially important. This meant the development of a standardized inventory form, containing categories for recording inscriptions and other physical data. To allow utilization of inventory data for planning grave marker conservation activities, a conditions' assessment is particularly useful. For the Boston inventory, the inventory form was revised to include specialized conditions terminology developed by a masonry conservator.

The Boston gravestone inventory project was designed:

- To provide an official record of extant grave markers to safeguard against vandalism and theft;
- To aid in the development of a master plan for coordinating grave marker conservation with other preservation activities, including landscaping, structural engineering, and maintenance;
- To serve as a planning tool for rehabilitation efforts such as path systems and interpretive signs and markers;
- To provide public access to genealogical, other historical, and artistic data recorded on grave markers; and
- To provide a document for use in developing public educational and fundraising materials to encourage community interest in and support for preservation of Boston's historic burying grounds.

Other important elements of the data collection aspect of the inventory process include:

- Mapping - numbered gravestone inventory forms are cross- referenced to a map of the burying ground site to locate individual markers;
- Photographic Inventory - (See Appendix III) provides a visual record that supplements the written data on the inventory forms; and
- Fragment Recording - (See Appendix IV) as a preliminary step to collection and storage of gravestone fragments that may otherwise be lost.

Boston Inventory Project

The following inventory methodology was developed for use by the Historic Burying Grounds Initiative. The inventory of all sixteen burying grounds, under the jurisdiction of the Boston Parks and Recreation Department, began in 1983 and continued every summer until completed in 1987. This seasonal schedule allowed utilization of both summer interns and good weather. As King's Chapel Burying Ground (1630) is a relatively small site containing only 615 grave markers, the oldest burying ground on Boston's Freedom Trail, and easily accessible in downtown Boston, it was chosen for the initial pilot program the first year of the inventory project.

Methodology

The inventory process developed for the Boston burying grounds involves the following steps:

Preliminary Research at libraries, historical societies, and other repositories to locate historical documents such as early maps or site plans, historical photographs, epitaph collections or old inventories, and local histories. Such material contains valuable background documentation on site development, early families, landscaping and other

site improvements, i.e. fencing, walls, steps, past grave marker or tomb preservation efforts, and other valuable facts about development of the burying ground.

After the field work has been completed, the combined data provides an enduring record. Archival research can supplement missing inscriptions for illegible, damaged, sunken grave markers. This information also documents missing grave markers, unmarked tombs, and grave markers of special historic or artistic significance.

Field Work begins with establishment of a numbering system cross-referenced to a working map of the site, based on historical plans, if any exist, to identify individual grave markers and their locations within the burying ground. Every headstone, footstone, tomb, tomb marker, and monument is assigned a number.

Each marker then receives an inventory form noting: location number, name, date, type of marker, physical data including type of carved ornamentation, material, size, and condition. Verbatim transcriptions of legible inscriptions are also recorded. A photographic inventory is performed after the written inventory has been completed, as funding permits, to provide a visual record that complements the written inventory. (See Appendix III.and Daily Work Flow and Description of Inventory Form for further details on conducting an inventory.)

Data/Research Synthesis (Final Report, Indexing, Public Access) begins after the field work has been completed. A final report is produced with:

- factual information about the site - acreage, number of grave markers, location, topography, etc.;
- historical background, on-site development, significant people interred, association with events of note, and so forth;
- artistic significance - noteworthy examples of stonecarver craft.

In addition, the data collected in the field is computer-indexed to allow easy access to the information on the completed forms. Three indices to each completed burying ground inventory are provided, listed alphabetically by last name (every name recorded on a grave marker is indexed separately), chronologically by death date, and by location number within the burying ground site. Other indices are possible, such as by individual terms of condition, depending on computer/word processing capacity. Inventories can also be supplemented, to record and monitor grave marker conservation treatments as well as further losses.

The final report, indices, and original inventory forms are made available for public reference at local archives. The Boston burying ground inventory forms, maps and indices are on file at the Bostonian Society Library; the indices are additionally on file at the Boston Athenaeum, the New England Historic Genealogical Society, the Boston Public Library, and at branch libraries near neighborhood burying grounds. Indices and maps are also provided at sites adjacent to burying grounds on Boston's Freedom Trail.

Daily Work Flow begins following a week of orientation and training. Inventory team members are assigned to specific sections of each burying ground. For security, company, and reinforcement of purpose, it helps to have at least two people working at a site together. A working map is drawn approximately to scale to locate all grave markers within the burying ground. If a historical plan exists it is updated for locational accuracy. Missing stones are crossed out, and new placements or changes in location carefully added. The markers on the maps are numbered consecutively, and inventory forms for each completed. Once trained, a team member completes between 30 and 50 forms daily.

After each section has been completely inventoried, another team member rechecks the field map and inventory forms to double-check for omissions of markers and accuracy of the numbering sequence. In general, it is helpful to use pencil for the numerical listings on the maps and inventory forms until the rechecking phase has been completed. Fragment forms are prepared to indicate the location, material, dimensions, shape, inscriptions and motives, of all out-of-ground marker fragments. Care is taken to keep the batch of forms for each section separate.

To insure legibility of photocopies, only black ball-point pens are used on completed inventory forms. Other equipment required: a trowel for careful excavation of markers to read below-grade inscriptions, a soft paint brush for cleaning surface soil obscuring the inscription, an 8′-10′ retractable tape measure for marker measurements and location, and a small hand mirror to reflect sunlight for reading shaded or worn inscriptions.

Inventory Forms were designed specifically for Boston's historic burying grounds, but can be adapted for use in any burying ground site. As mentioned above, a 1985 revision added specialized condition and damage assessment terminology so that the inventory could readily facilitate development of grave marker conservation programs.

At the top of the form, the location/reference number specifies the location of the grave marker. The first letters are abbreviations for the burying ground. The letter and number after the slash indicate section and grave marker number. For example, DN/C-35 denotes that this marker is located at Dorchester North Burying Ground and is the 35th marker in section C.

Record Date: Date the form was prepared in the field.

Weather: Brief description of weather on recording day.

Examined by: Initials of recording team member.

Name: Name of interred. If several names are carved on the marker, the earliest dated or most prominent name is recorded and reference is made on the reverse side of the form for additional names.

Date: Death date(s) as inscribed. Method of recording is similar to that used for Name.

HISTORIC BURYING GROUNDS INVENTORY FORM

Loc./Ref.No. DN/C-35

PEARCE ANN
last first middle

Record Date 6/10/87

Date 12/31/1695

Weather sunny
Examined by SL

Motif:	2d Motif:	Border:	Carving:	Shoulder:
[✓ 1.Skull]	1.Hourglass	1.Typical	[✓ 1.Mint]	
2.Face	2.Crossbones	[✓ 2.Elaborate]	2.Clear but Worn	
3.Urn/Willow	3.Coffin	3.Simple	3.Mostly Deciph.	
4.None	4.Tools	4.Plain	4.Traces	
5.Other:	5.Other:	5.Other	5.Illegible	

Marker Type: [✓ HS] FS T M Other:

Orientation: N W E [✓ S]

Dimensions: W 11" H 12 D 2

Bedding: =

Plot Description: grassy

Materials: [✓ 1.Slate]
2.Granite
3.Marble
4.Sandstone
5.Brick
6.Other

Rating: 1.
2.
3.

CONDITIONS
Soiling:
Stains:
Efflorescence:
Graffiti:
Biological Activity:
Erosion:
Blistering/Flaking/[✓ Scaling]: along edges of borders
Delamination:
Cracking:
Tilted/Fallen/[✓ Sunken]: but not deeply
Open Joints:
Fragmented:
Losses: rather large chips off top
Other Damage: ms

Previous Repair
Fills/Replacements:
Adhesive Repair:
Reinforcing:
Coatings:
Enframements/Footings/Beds:
Other:

Photo Date: 4·22·87

Negative # Roll49 · #32

Inscription:

HERE LYES $\overset{e}{Y}$
BODY OF ANN
$\overset{e}{Y}$ WIFE OF
ROBERT PEARCE
AGED $\overset{\text{ABOUT}}{\wedge}$ 104 YEARS
DIED —— DECEMBER
$\overset{e}{Y}$ 31 1695

Remarks:

Signed:

Probated:

Motif: Traditional decorative carvings found on Boston grave markers are listed on the form and are checked-off as applicable. These motives are:

skull	(17th and 18th centuries)
face	(18th and 19th centuries)
urn and willow	(19th century)
none	(17th century and footstone)
other	(heraldic or other imagery)

Primary motives are usually the largest, carved in the tympanum, the semi-circular uppermost part of the gravestone. Secondary motives are displayed in conjunction with the primary image or elsewhere on the marker.

Border: The carved decorative margin around the inscription.

Typical - The leafy-spiral border often found on local grave markers, typical to Boston.

Elaborate - Unusual or rare decorative motives, sometimes including fruit and other naturalistic detail. This category also is used for foliate and other ornamentation executed with particular skill.

Simple - Curvilinear or geometric patterns.

Plain - Single or multiple enframing lines.

Other - Figurative elements, architectural forms, or designs not included in above descriptions.

Carving: The condition of the carved decoration and inscription.

Mint - Sharp and clear. Inscription can be read easily.

Clear but worn - Edges are smooth, not crisp.

Mostly decipherable - Areas are discolored or lost, but most of the inscription can be read.

Illegible - Inscription is substantially lost.

Type of Grave Marker:

Headstone - Predominant in Boston graveyards, usually displaying a full inscription and decorative carving.

Footstone - Usually smaller than headstone, may include only initials or a name, sometimes the death date. Carved decoration is rare.

Tomb - Either an above-ground or below-grade structure which may include several chambers for multiple burials; often marked with a horizontal table-top slab on a masonry base or by brick or granite-walled construction.

Orientation: The direction the marker's primary carved surface faces. If a grave marker is horizontal, the direction noted is the one it would face if upright. For tombs, the slab's axis is noted; i.e., N-S or E-W.

Dimensions: Measurements for width are taken side-to-side at the widest point; height is measured from ground level to the highest

point of the grave marker; depth is the average thickness of the marker from front to back. Additional measurements for tombs and monuments are also recorded.

Bedding: Record stone material's bedding planes; i.e., slate has parallel planes (=), other materials may have planes at an angle to the surface (indicated by _/_).

Plot: Description of the marker's immediate setting - grassy, bare, paved, etc.

Material:

Slate - Most grave markers in Boston's historic burying grounds are carved of slate, a smooth-grained stone with even "bedding planes" running parallel to the stone's face.

Granite - Crystalline texture and dappled coloration, with no discernible bedding planes.
Generally grey with black, white or pink flecks.
Often used for monuments and tombs.

Marble - White or grey-white, often eroded. Marble is associated with 19th century headstones and monuments.

Sandstone - Tan or red-brown with fine, grainy surface, often eroded or flaking.

Other - Includes greenstone, a thick green-gray stone used for 17th century markers; brick; concrete; and metals.

Condition: This portion of the inventory form provides a list of standardized terms to record the physical condition of grave markers. Judgment concerning cause of damage is not made. The terms were developed by a masonry conservator as part of a pilot conservation program detailed in the Master Plan section of this manual. Condition data is used to plan conservation programs:

- Biological Activity
- Blistering
- Cracking
- Delamination
- Efflorescence
- Erosion
- Flaking
- Fragmented
- Graffiti
- Losses
- Other Damage
- Open Joints
- Previous Repair
- Scaling
- Soiling
- Stains
- Tilted/Fallen/Sunken

See the Glossary of Terms in Gravestone Conservation section for definitions and standardized abbreviations.

Photo Date: If applicable, date the grave marker was photographed.

Negative #: Reference number for location of separately filed negative.

Inscription: Recorded on reverse side of inventory form, always verbatim, i.e.

HERE LYES Ye BODY not Here lies the body of
of Mr PAUL PRATT Paul Pratt.

Whenever necessary, and possible, any portion of the inscription buried beneath ground level can be gently excavated. Information derived from sources other than the grave marker's presently legible inscription, whether inferred from fragments or determined from research, is displayed within brackets and the source noted on the form. Sketches of the grave marker whenever warranted by distinctive features or losses also are recorded on the form's reverse side.

Remarks: Includes annotations or unusual circumstances not otherwise described, on-site fragments, rare imagery, high artistic quality, etc. Probate data (if known), notations of carver's initials, prices or practice carving "sketches," and other information also are recorded here.

Preservation Priorities

Based on the site analysis and historical information gathered during the Boston inventory, specific priorities and recommendations have been formulated to facilitate a program of burying ground preservation.

The most visible and common damage to Boston's grave markers has been caused by the effects of weathering and/or vandalism, depending on the site. Sporadic or short-sighted maintenance or past preservation efforts are a smaller factor. Of urgent priority is grave marker and tomb stabilization and repair, concentrating, out of economic necessity, on those grave markers most at risk from further deterioration, those which are historically or artistically significant mentioned above, markers most visible, and the markers most likely to be repairable with available conservation technology. The information on the completed inventory forms, in conjunction with photographic inventory, is used to develop a scope of conservation services designed to target grave markers in need of high priority treatment.

Master Plan

MASTER PLAN

Performing a grave marker inventory is one way of assessing conditions in a burying ground prior to launching preservation efforts. In a similar manner landscape and site conditions need to be assessed. Then recommendations need to be developed regarding courses of action for rehabilitation or restoration of gravestones, landscape features and structures alike. Priorities and budgets must accompany the recommendations so that projects can be phased and funded. Finally, a management/maintenance plan is required for ongoing stewardship.

The site resources and human resources from place to place will vary sufficiently so that no single planning team will necessarily be the best choice for all projects. Creativity in combining the talent pool at hand to realize more than the sum of its parts is challenging and important. In selecting individual contractors or even volunteers the cost of professional project management must be considered. Putting the whole planning process in the hands of one firm will only become an option as the field of burying ground preservation evolves. Finally, developing a list of local or regional professionals as well as talented contractors will aid implementation of the plan.

Boston calls all of the comprehensive planning (besides the stone-by-stone inventory) the Master Plan for the Historic Burying Grounds Initiative. The BPRD decided it could best serve its needs by contracting master planning services to consultants. The BPRD chose to hire a team of consultants under separate contracts but under the direction of a projectmanager. With an eye to both its burying ground sites and available consultants, Boston selected its master plan team as follows:

- a preservation planner/project manager who had coordinated comparable projects for the Boston Landmarks Commission
- a landscape architect who had prepared master plans and maintenance plans for historic parks
- a structural engineer with extensive experience on historic structures
- an architectural conservator who had worked on a 17th-century graveyard
- a historian who had developed the gravestone inventory methodology
- an art historian who specialized in gravestone carvings.

At the beginning of the master planning process all the consultants held a round table meeting, with a Parks Department planner and engineer and maintenance staff members also attending, along with the Executive Director of the Landmarks Commission and an archaeologist from the Massachusetts Historical Commission. The shopping list of issues was

thoroughly discussed so that every item on it would be studied from different viewpoints. For example, the conservator was interested in reviewing the engineer's recommendations for rebuilding a tomb and the landscape architect's recommendations for feeding the grass with chemical fertilizer. The early meeting set up contacts for interdisciplinary coordination as the plan developed. At the first draft stage of the plan, another full-team meeting was held as a final review session.

The major product for the master plan for HBGI was a three-volume report. Summaries of general grave marker conservation and landscape and structural sections of the report are provided below.

Gravestone Conservation

By virtue of the gravestones, burying grounds are outdoor museums as well as open spaces or parklands. This has crucial implications: the agency or organization responsible for management and maintenance of a historic burying ground must function as curator as well as groundskeeper.

Typical problems in an old burying ground include tilted, sunken, broken gravestones. Closer inspection may reveal blistering and flaking of the stone surfaces, unappealing dirt and lichen on stones, and eroded stones whose carving is no longer legible.

The forces at work which damage and destroy gravestones are multiple:

Environment-related factors

Water is the greatest problem, as it is with old buildings. As water enters minute cracks in the stone, either via precipitation, or groundwater migrating upward, it freezes (expands) and thaws (contracts), breaking down the material from within. Pollution such as acid rain also works to destroy grave markers by actually dissolving the minerals which bind together marble, sandstone, and limestone. Biological activity, such as lichen, mosses, or ivy growing on gravestones, also can contribute to the deterioration process.

People-related factors

These activities range from tourists leaning absent-mindedly against a gravestone; eating lunch perched atop a tomb; gravestone rubbings - wiping wax, ink or crayon over paper-wrapped gravestones; to intentional acts of vandalism - tipping over or breaking gravestones in two, using gravestones as targets for bottle-smashing, joy-riding or abandoning and burning cars inside burying ground. Ill-informed maintenance practices result in lawn-mowing scrapes against gravestones and other potential problems such as loose gravestones piled-up in the path of lawn mowers. Deferred maintenance may result in dead tree limbs that can fall and smash dozens of stones at a time, posing a danger to the public as well; or inappropriate stopgap repairs, i.e., wrong color and type of mortar for tomb repointing.

Cautionary Notes: It is vitally important to consult a trained masonry conservation specialist with expertise relative to specific materials, climate and treatments, prior to embarking on any gravestone conservation program. The best intentions can lead to terrible results regarding gravemarker preservation. Examples are all too numerous: brownstone markers set in cement start powdering at ground level due to excessive moisture; marbles disintegrate, the process accelerated by moisture, salts or pollutants trapped inside epoxy coatings; and slates are marred by wire brushes or abrasive cleaners.

It is prudent to consult with the city/town historical commission and the state office of historic preservation before conservation efforts begin. Ask what regulations govern work in historic burying grounds and if any permit or application process is required.

Historic Burying Grounds Initiative Gravestone Conservation Methodology

In Boston, preservation of gravestones and monuments in old burying grounds has been a subject of interest and concern to many since at least the early 19th century. Various attempts have been made to preserve and interpret the earliest markers. Until recently, the development of a conservation program addressing gravemarker preservation policy, as well as appropriate treatment techniques, had not been attempted on a large scale.

A program developed for King's Chapel Burying Ground included a conditions survey of endangered markers, a history and evaluation of previous conservation treatments at the site, and representative demonstration treatments. Although the program was developed specifically for grave markers at King's Chapel, the resulting study was used as a basic methodology for gravestone conservation in the other Boston sites. Additional analysis and treatments were added, on an as-needed basis, to address materials or problems not encountered at King's Chapel Burying Ground.

King's Chapel, the oldest burying ground on the original Shawmut Peninsula, established 1630, was chosen for the pilot gravestone conservation program because of its historic significance, its prominent location in downtown Boston on the Freedom Trail, and its manageable size of 1/2-acre and manageable number (615) of grave markers. The Center for Preservation Research, a Columbia University architectural conservation research and consulting group, was selected to develop the program, having

recently completed a similar program in New York for Trinity Churchyard, the oldest burying ground in Manhattan, contemporaneous with King's Chapel Burying Ground.

The scope of the work in King's Chapel Burying Ground included a conditions survey for gravestones, tomb markers, and monuments; a history and evaluation of previous conservation activities at the site; and development and demonstration of representative conservation treatments. The Center's project report is summarized below.

In accordance with the HBGI's preservation philosophy developed during the planning phase, the pilot King's Chapel project stressed a conservative approach to gravestone conservation, with the least disturbance of original materials possible, utilizing reversible techniques whenever feasible. Trial techniques were performed on the least significant stones. The Boston approach to grave marker and tomb repair also emphasizes stabilizing the physical integrity of the artifact without cosmetic reconstruction of the damaged stone. The existing profile of the grave marker is retained, without recreating features that no longer exist, either by recutting inscriptions or rebuilding lost elements with contemporary materials. Repair materials are selected based on compatibility with the existing fabric. Badly deteriorated or illegible markers remain on-site, as part of the historical context, and await future conservation, when more advanced conservation techniques will (hopefully) become available.

Conditions Survey

Concurrent with historical research, a survey of existing conditions was conducted at King's Chapel Burying Ground to establish a basis for comparative study of the deterioration process. Development of an appropriate and effective conservation treatment program presupposes a detailed understanding of the processes of decay. As deterioration most often occurs slowly over a long period of time, most conservators agree that the best approach to this problem--short of continuous long-term monitoring --is systematic recording of conditions data, with periodic surveys to measure and evaluate the extent of deterioration.

Development of standardized terms to record such data was judged necessary for several reasons. First, the number of artifacts (approximately 12,000+ in all Boston's burying grounds) to be examined dictated some control on the amount of time spent writing detailed descriptions. Secondly, standard terminology limited inconsistencies in descriptions, especially when used by a team of data-gatherers, and discouraged premature interpretation of data. Finally, standardized terms allowed quantification of remedial operations and estimating costs.

The standard terms for gravestone conditions (below) were included on the stone-by-stone inventory forms already in use to record inscriptions and other physical data, to ensure that conditions recorded in all Boston sites were consistent with the stone conservation methodology.

Conditions Glossary

Soiling:	Surface deposits of fine particulate matter, generally dark in color, modifying or obscuring the stone's appearance.
Stains:	Discoloration by minute deposits of highly colored matter within the pores of the stone.
Efflorescence:	White crystalline surface deposits composed of water-soluble salts.
Graffiti:	Discoloring markings, typically paint, ink, chalk or crayon.
Biological Activity:	Micro-organisms, (fungal or algal growth), small plants (such as mosses), vines, bird droppings.
Erosion:	Gradual loss of surface material resulting in rounded and blurred edges of carving. In advanced stages, an overall granular "sugary" texture prevails and inscriptions become illegible. (esp. marble and limestone)
Blistering:	Swelling and often rupturing of a uniformly thin layer of stone.
Flaking:	Detachment of a uniformly thin layer of stone. (esp. slate and sandstone)
Scaling:	Advanced loss of stone of variable depth (cf. "Delamination").
Delamination:	Separation of relatively thick layers of stone along bedding planes. Early stages of delamination appear as fissures along the top edge and are recorded as "Cracks." Major detachment through this process is recorded under "Losses."
Cracking:	Narrow fractures of variable length and direction. (esp. slate)
Tilted/Fallen /Sunken:	Significantly out-of-vertical alignment, i.e. more than 15 degrees; flat on the ground; or partially buried.
Open Joints:	Missing or defective mortar pointing, usually associated with tombs.
Fragmented:	Broken or detached stones with fragments still available for reassembly.

Losses: Absence of original material, as indicated by an incompleteness of form, decoration, or inscription.

Other Damage: Other conditions not listed above (e.g. chipped edges), and mechanical effects such as lawnmower scrapes.

Previous Repair: Indications of earlier efforts at repair or restoration.

Standardized Abbreviations Used in Indexing

Biological Activity:	ba
Blistering:	bl
Bullet scars	bs
Chipping	chp
Cracking	crk
Delamination	del
Efflorescence	eff
Erosion	ers
Fallen	fal
Flaking	fk
Fragmented	frg
Graffiti	grf
Loss	ls
Mower Scars	ms
Open Joints	oj
Painted Surface	pa
Pitted	pt
Repair	rep
Scaling	sc
Soiling	soi
Stains	st
Sunken	sun
Tilted	til

(fs)	footstone
(m)	monument
(mk)	marker
(p)	plaque
(t)	tomb
(tm)	tomb marker
*	info. from field observat.
**	information from research.

Conditions Summary

The most visible problem at King's Chapel Burying Ground were a number of tilted, fallen, and/or sunken gravestones. In addition to the effects of frost heaving, this condition may have been the result of at least two grave marker realignment campaigns (ca. 1850's and ca. 1930's), which snapped off many stones at their bases or left them poorly imbedded. An estimated 100 stones were recorded as seriously tilted (more than 15 degrees and in danger of breaking at the base due to their own weight) including 22 detached and fallen stones, some of which were also broken. During realignment in the past, some gravestones were either wedged tightly in place between other stones, or partially buried, with a portion of inscription just above grade. This intensified the damage caused by lawn mowing; mower abrasion has scarred almost every stone on-site.

In addition to displacement and abrasion, the majority of the gravestones and tombs were extremely soiled, greatly limiting legibility. Several slates also bore a curious reddish-brown color, probably a pigmented coating applied before the ca. 1930's realignment, perhaps as a cosmetic or preservative treatment.

With exception of the common conditions noted above, and deterioration caused or accelerated by previous repair treatments such as use of cement stucco over sandstone tomb slabs, the predominant stone materials found at King's Chapel - slate, marble, and sandstone - exhibited specific problems.

Slate: In general, the slate gravestones in King's Chapel Burying Ground are remarkably well-preserved, considering their extreme age. The most serious conditions observed in these gravestones were flaking, delamination, cracking and fragmentation (see Glossary). Flaking and delamination generally affect the carved areas of a stone's surface, thus disrupting the aesthetic and historical integrity of the marker. Cracking and fragmentation, on the other hand, lead to structural instability and often result in collapse. In all cases, these conditions can be linked to the reaction of the stone to weathering and inherent geo-chemical flaws characteristic to slate.

Marble or Limestone: The most serious problem facing this type of monument is pollution-related surface erosion; in King's Chapel, this has resulted in illegible inscriptions and decoration, and in altered profiles. Some of the marble monuments additionally exhibited crusts which show flaking and blistering. Crust formation, typical of the decay process of carbonate rocks in sheltered locations, is unusual on gravestones exposed to the rinsing effect of rain water. Sulphate crusts indicate the localized retention of gypsum, a somewhat water-soluble reaction product of weathering, incorporated into this new crystal growth are particles of air-borne dirt. Thus, the sulphate crusts on the gravestones at King's Chapel are associated with heavily soiled areas.

Sandstone: Exfoliation (blistering, flaking, scaling, delamination) and cracking were observed in a variety of stages on most sandstone tombs in King's Chapel. Extensive losses from the top and side slabs of many tombs appeared to be the final result of this mode of deterioration. Severe scaling was also seen in numerous instances.Although flaking and blistering is common on sandstone markers in Boston burying grounds, it is not considered as urgent a threat as for slate, since most of the inscriptions or carved decoration on the sandstone surfaces are largely lost already.

Tombs: The general historical appearance of most of King's Chapel's tomb structures has been significantly altered, as described above, by the introduction of cement-pargetted bases over the last century. Aside from historical inaccuracy, most of the brick bases are in poor condition, as the hard, relatively non-porous cement coating has trapped moisture inside and subsequently cracked, detached and discolored often taking with it surface layers of the brick or stone below.

Conservation Pilot Program

The conservation program involved identifying, selecting and treating grave markers based on the nature and severity of their condition, and on their individual level of historical significance. To address the most representative conservation problems for demonstration treatments, markers were selected on the basis of stone type and relative condition. In addition, 57 stones identified as "endangered" were selected as candidates for conservation as part of the program and in the immediate future. Endangered stones were defined as those not likely to survive another year of exposure to the elements without some major damage resulting. Criteria for this judgement were as follows:

- risk of material losses due to accelerated decay;
- instability of carving or inscription;
- imminent danger of theft or negligence.

Final selection of all markers was also based on the historical and aesthetic significance assigned to each by the project archaeologist and historians, with the initial conservation work restricted to markers of lesser significance. Once conservation treatments have been proven acceptable, work can proceed on stones of greater significance.

As the primary goal of the field work was stabilization of endangered gravestones and tombs, cosmetic reconstruction of broken or damaged stones was not attempted. However, materials selected for repair work was, in all cases, sensitive to the surviving fabric.

In addition to the identification of endangered stones, a fragment collection program was initiated to forestall loss of gravestone pieces. (See Appendix IV.)

Conservation Treatments

Appropriate treatments for a particular site are based on analysis of specific grave markers and the type and level of damage on-site. Generalized "miracle cures" and palliative coatings used indiscriminately for all grave markers and conditions will often accelerate deterioration in the long term. While the following treatments have been utilized in Boston's graveyards with success, we cannot disseminate how-to recipes to restore any gravestone or tomb. We include below a synopsis of the treatments used successfully in Boston which are professionally available at this time.

Grouting: Treatment used to stabilize conditions such as cracking and delamination to slow or perhaps halt the deterioration process. A grouting material is injected on-site into some types of cracks or separated bedding layers (due to moisture and freezing). Then a cement/lime mortar cap is carefully applied to protect grouted areas from intrusion by water. Pigment is added to the mortar mix to approximate the color of the (cleaned) stone.

Adhesive Repair: Structural adhesive can be used to repair broken gravestones and re-attach fragments. Removal of gravestones was found to expedite the cleaning, clamping, and readhesion process for Boston's gravestones. Inobtrusively-colored mortar capping is applied, similarly to the grouting process, to protect the adhesive from weathering action. Reinforcing pins were not used on Boston slates, and are not generally recommended, as drilling can contribute to delamination; however, teflon pins may prove useful in extreme cases where reinforcement is required.

Flaking of stone surfaces, and subsequent stages of blistering and scaling, are technical terms for what is commonly called spalling. This condition generally leads to loss of the shallow-carved surfaces of a gravestone. Currently, the Center for Preservation Reseach is testing long-term injection treatments for stabilizing flaking surfaces. Temporary application of Japanese tissue can hold small, loose surface pieces in place. This technique, although fairly successful in Trinity Churchyard in New York, was not used in King's Chapel; it was felt that the tissue might be pulled off by well-meaning visitors—accelerating surface losses.

As with marble, immediate conservation needs of sandstone are deemed relatively modest due to the advanced state of deterioration. Priority attention was recommended for the removal and replacement of defective previous repair work, as was the filling of open shallow cracks on the top surfaces of tombs to prevent water intrusion and slow the process of exfoliation. Consolidation of scaling areas was also recommended to help prevent continuing loss of material.

Below is a summary guide of treatments used for resetting cleaning. These conservation treatments may be appropriate, with training and supervision, for application by maintenance or volunteer-level clean-up programs.

Resetting: Stones tilted 15 degrees or more can break off at ground level due to their own weight. Inscriptions on sunken stones can be subjected to lawnmower scarring. Loose stones can rub against other stones or fall over on the ground.

A simple treatment for resetting gravestones is to dig down carefully (working at the non-carved back of the marker) to loosen the base. Use care with metal tools; they can easily scratch slate. With the gravestone out of the ground, chalk the best level at which the stone will be reset, (in Boston graveyards, this was usually 2-3" below the carved inscription and border). It is easy to tell when the stone is excavated, where the carver demarcates the above- and below-ground portions of the stone. Generally, 40% of the stone remains below-ground and provides stability. A washed crushed stone and sand mixture is tamped in to the excavation to form a 4" bed beneath the reset stone, and to fill in around the base to facilitate drainage. Check that the gravestone has been reset straight and plumb, then loam and sod are replaced at grade. Stones with insufficient bases should not be reset, but treated as fragments; they are removed for storage until a suitable mounting technique is available. Mounting of truncated stones and fragments should be accomplished with a treatment that does not set the stones in a concrete foundation, laminate them with adhesives, mount them into frames of incompatible materials

or drill holes in them. A method utilizing custom-made clips and new slate backs custom-cut to support fragments was recommended in the King's Chapel program, but such treatments have not been implemented to date in Boston due to costs for the clips and slate backs, and due to potential security risks to the fragments.

Cleaning: Gravestones with a heavy coating of normal, environmental soil have limited legibility. Cleaning begins with a mild detergent solution, which can prove dramatically effective in removing environmental soil. This can be a successful community project, executed under careful supervision. Keep in mind, however, that a few good rains can obscure cleaning efforts. All proposed cleaning solutions and their application treatments should be reviewed by a conservator.

Trial or pilot treatments should be monitored after a winter. All gravestone conservation treatments should be recorded, and re-examined at five-year intervals to evaluate long-term deterioration trends and effectiveness of treatments. Development of any gravestone conservation program involves weighing several considerations: need for emergency stabilization of condition; integrity of the gravestone (availability of existing fragments for reassembly); visual and historically significant priorities; and cost-effectiveness of treatments.

Maintenance

As part of a routine schedule of maintenance, seasonal site visits are conducted to keep track of newly dislodged or out-of-the-ground stones and cases of accelerated deterioration due to weather or vandalism. Collect, record and properly store out-of-the-ground stones, whole and fragments (see Fragment Collection Methodology in Appendices).

Display regulations to discourage leaning or sitting on stones or tombs and to prohibit rubbings (which can leave wax or ink and cause surface losses and scratching through abrasion). Protect stones from lawn mower scarring by keeping grass away from stones or trimming with nylon filament trimmers (metal hand-tools can abrade stone). Avoid chemical weed killers, pesticides and snow-melting salt near stones, and do not use burning as a method for controlling grass and weed growth in graveyards. Check all chemical fertilizer formulas for trees and grass with conservator in advance. Report all vandalism and other problems to proper jurisdictional authority promptly.

Check mature trees periodically to safeguard against threats to stones and tombs from invading root systems and falling or scraping branches. Prune trees to eliminate screened areas that become hang-outs. Avoid planting new trees and shrubs too close to grave markers. Remove weed tree growth regularly near stones and tombs. Remove chains on paths that rub stones. Cover nearby stones when painting fences. Clean catch basins regularly to help alleviate surface and groundwater problems.

Site Rehabilitation Issues

The landscape architect and structural engineer on the HBGI master planning team began with an inventory of each site. Descriptions and existing conditions of features including trees, grass, paths, tombs, walls, fences, gates, steps, soil erosion, drainage problems and so forth were documented, photographed, mapped and summarized in report form. Historic photos were researched by the historian/inventory coordinator and shared with the landscape architect and structural engineer as well as with the conservator.

The entire Historic Burying Grounds Initiative Master Plan, printed in three volumes, details the conditions, analysis, recommendations and prioritized budget for each site. General issues for landscaping and structural features, taken directly from the Master Plan, are included below.

Landscaping: Existing Conditions Summary and General Recommendations

Each graveyard's landscaping report is divided into the following major sections:

Location Map
Historic Photographs or Maps
Existing Conditions Survey
Existing Conditions Photographs
Existing Conditions Plan
Site Recommendations
Master Plan
Cost Summary

The landscape architect's examination of the sites revealed a distinct similarity of problems. Equally clear was the necessity for standard solutions to these difficulties. Offered were the following broad comments and recommendations pertaining to the restoration and preservation of landscape elements in the historic burying grounds.

Access and Security

Fifteen of the sixteen burying grounds presently have lockable gates, fences, and walls, but four of these afford unintentional access

through vandalized fences and walls, and one is missing a gate. Walter Street Burying Ground has open access from the street.

The four downtown sites - King's Chapel, Granary, Central and Copp's Hill - have gates which are opened daily at specific times. This policy should be maintained with the hours clearly posted. Eleven grounds are only opened upon request; unless the demand increases, this policy should be maintained. The sixteenth, Walter Street, should be maintained without a fence, as is (inside Arnold Arboretum). Handicapped access has not been specifically address at any of the sites. Such accessibility should be an immediate priority, where feasible.

Circulation

The two most heavily used sites, Granary and King's Chapel, have poor to fair circulation systems. Copp's Hill, Eliot and Dorchester South have excellent circulation systems, while Central, Walter Street, Hawes/Union and Market Street never had path systems. Phipps, Dorchester North, Bunker Hill and Bennington Street have only remnants of extensive path systems shown on early 1900's plans. Westerly and South End apparently had circulation systems, but none remain in evidence today.

Workable and logical circulation systems should be an immedidate priority for sites with heavy visitor populations, such as King's Chapel and Granary, or at sites which are expected to have more visitors in the

future, i.e., Eliot Burying Ground once the adjacent Roxbury Heritage State Park is developed. Phipps, Dorchester North, Bunker Hill, Bennington Street and Hawes/Union should have a partial path system, as an immediate priority. Central, Walter Street, Market Street and Westerly should remain in their present state without path systems, as should the east section of Copp's Hill.

Lighting

The burying grounds never had decorative pedestrian lighting and should not have any added. Additions of security lighting would be advisable in some cases—mounted on adjacent buildings wherever possible, or on independent poles.

Pavement Materials

Granary, King's Chapel, and Phipps presently have precast concrete block pavement which has been in existence since the early 1900's as documented by historic photos. Copp's Hill has brick pavement and brick edge installed after the early 1900's. Central, Walter Street, Hawes/Union and Market Street appear never to have had path systems. Westerly and South End have no path systems at present, but the 1900's map of Westerly and the late 1800's map of South End show path systems. Eliot, Dorchester North, Bunker Hill and Bennington have remnants of bituminous concrete paths, but much of their original path systems shown on the 1900's maps were never paved. Dorchester South has bituminous concrete gutters.

Brick with a brick edge or concrete block pavers with a precast concrete edge, both on a stonedust bed, are recommended. A paving unit rather than bituminous concrete or concrete pavement is recommended due to its flexibility in terms of maintenance. Though the initial cost is higher, the paving unit will last longer. Maintenance includes preventing grass from growing in the cracks, replacing individual pavers, and regrading sections. An alternative would be a soft material such as stonedust, but it is difficult to maintain weed-free and evenly distributed.

Path Edging

Post-and-chain edging is presently utilized to keep people on paths in the Granary. However, as many of the posts have been uprooted, this edging looks unattractive, tends to trip visitors, and, in many cases, conflicts with gravestone protection by abrading markers. Posts and chains should be eliminated as an urgent priority and should not be used in other burying grounds.

Path edging at Copp's Hill is a brick-on-end set two inches above the path elevation. This helps to control the water flow on the steep slopes at Copp's Hill thus preventing erosion. The use of brick or precast concrete edging is proposed for all sites.

Site Furniture

Benches should not be installed within the burying grounds as a general rule. A bench installed just outside the gate, as is presently the case at Granary, seems a good idea when the sidewalk is wide enough to permit it. The metal oil drums presently in use as trash receptacles, should be removed from all sites, or at least painted yearly until suitable replacements are found. Closed sites should not have trash receptacles at this time. New trash receptacles set on a paved pad should be placed at King's Chapel, Copp's Hill, Granary and Eliot and at other sites if opened daily in the future.

Lawns

In burying grounds with extensive tree cover, the shade produced by mature trees and the dissipation of water and nutrients by the surface feeder roots, result in grassy areas which are, generally, in poor to fair condition. Compaction from foot traffic has also affected some areas. These areas should remain as grassy areas and should not be planted with groundcover or shrubs. Where areas are to remain grassy and renovation is required, shade mix seed should be used. A slow-growing grass, as described under the Maintenance Recommendations, should be tried.

The use of weed killers, insecticides and disease sprays should be discouraged to avoid potential damage to gravestones. When necessary, the chemical formula should be checked with a stone conservator before use.

Planting

Deciduous trees are the predominant plant material found on all sites. The Granary has an evergreen tree that has grown over several gravestones, an example of the disturbance caused by the growth of evergreens when positioned close to gravestones or tombs.

The predominant species in the four downtown sites is the linden, which is desirable since it grows well in urban conditions. The tree does have several undesirable traits, however, especially where gravestone preservation is of prime importance:

- vigorous and unsightly sucker growth at base;
- droppings of sap defacing gravestones and tombs;
- surface roots and density of shade inhibiting growth of grass beneath them.

A possible substitute for new plantings at these sites is the thornless honeylocust. It produces light shade which will allow the growth of grass; is good under urban conditions; has a small leaf size resulting in less fall removal; and does not have the linden's problems with surface roots, sucker growth or droppings of sap.

The other sites have far more variety in plant species. Lindens, oaks, maples, ash and honeylocusts are the predominating species. Oak, ash and honeylocust trees seem less troublesome, while the maples, with their surface roots, inhibit growth of grass beneath them as in the case of the lindens.

Trees should be replaced as they die; an effort should be made to replace trees with species shown on the 1900 series of plans. If disturbances to gravestones by roots is determined to be a problem, the offending trees should not be replanted in the exact location. The number and placement of trees should be restricted and the species limited to red oak, green ash and thornless honeylocust.

The question prevails: if trees are in conflict with tombs and gravestones, should they be removed or should the gravestones be relocated? Each case should be evaluated individually with the preservation of the gravestones being the prime consideration. If trees die or need to be removed due to conflict with gravestones or tombs, the tree should be cut as close to the soil level as possible and the root and stump left in place to decompose. The use of chemicals to speed this process could cause problems for the gravestones. Consult a stone conservator before use.

Historic photographs of King's Chapel, Granary and Dorchester North show extensive shrub, vine and groundcover plantings, urns with seasonal plantings and bedding-out plantings. As a general rule, shrubs, vines, groundcover and seasonal plants should not be re-planted within the burying

grounds for maintenance and security reasons. In the case of all three sites, these are Victorian treatments added to grounds dating back to 17th century. There are, however, two exceptions to the rule: at Bennington Street, an existing hedge should be retained, pruned, and infilled with new plants as required; and at King's Chapel, a broadleaf evergreen screen at the Old City Hall outdoor cafe should be retained.

Soil Erosion

In general, soil erosion in the historic burying grounds is not as serious as in most of the Boston parks. Predictably, high-use sites and sites that have unmaintained slopes have erosion problems.

Copp's Hill, one of the steeper sites, has less erosion than one would expect. The use of a herringbone brick pattern for the paths, a brick edge to control run-off, and a drainage system are the reasons for the present fine condition of lawn areas and lack of soil erosion problems.

Maintaining a healthy grass or vegetative cover would reduce erosion on all sites. This means adequate moisture and nutrients and good maintenance procedures.

General Structural Recommendations: Masonry, Repointing, Local Rebuilding and Concrete Repair

We recommend that the specifications developed for tomb repair at Central Burying Ground should become the standard for all work. Attention should be paid to the over-use and over-application of excessively hard mortars at all sites. Repairs must not be regarded as permanent, but as routine maintenance: Original masonry work involved the use of lime mortar, a material highly susceptible to washout; concrete and stone cap details were simply inadequate to prevent water intrusion and often were built without allowance for differential expansion. Thus, the concept of "cemetery repair," unique in this respect, is that it must be regarded as an on-going process, not as a "permanent" solution. Put another way, the damage can be corrected, but the cause almost always remains.

Water penetration combined with freeze-thaw movements is the major cause of damage encountered. As opposed to a typical building structure, the luxury of roofing and flashing over cemetery masonry is impractical, and in almost every case, impossible. This implies that on-going maintenance is necessary since cemetery structures will deteriorate rapidly.

Brick and Stone Masonry

To insure continuing masonry repair, we propose that a mason, trained and experienced in historic restoration, be added to the Parks Department

staff. Alternately, masonry repairs could be contracted out on an annual basis provided such work is supervised by experienced professionals.

Specific but broad comments relating to this topic need mentioning:

- Never use pre-mixed, bagged mortar or grout. These materials are too hard. They will not accommodate movement of the masonry and, in rare cases, may overstress the stone edges.

- Never edge-point a bulged or leaning wall with hard mortar. This type of "quick fix" solution accelerates outward movement. Bowing is generally caused by earth pressure and/or mortar washout; where appropriate, use gravel backfill behind the wall and install weep holes.

- Masonry which has undergone excessive local movements should be rebuilt, not repointed. Do not exceed a joint width of 3/8-inches when rebuilding.

- Whenever required, carry repointing below grade.

- Do not smear mortar on adjacent surfaces or on the repaired joint.

- Where possible, tie thin elements together using stainless steel pins. As an example, we have requested that the 6-inch wide granite walls at South End Cemetery be connected to each other and to the brick backup to achieve greater stability.

- Caulking and sealing materials should not be used for repointing. They are only acceptable at expansion joints and at the junction of dissimilar materials such as the concrete cap and brick piers of Hawes/Union Cemetery. They must be backed up with butyl rod or guaranteed failure will result.

- In any future concrete work, use air-entrainment and allow for large relative movements between concrete and brick. According to the Brick Institute of America, the thermal movement of concrete is more than double that of brick construction. Where possible and practical, install concrete drip edges.

Wall Reconstruction

Brick Walls: Several brick walls, particularly those at Copp's Hill, require rebuilding. We favor the inclusion of horizontal wire joint reinforcement and vertical rebars in their reconstruction. In lieu of lead-coated copper flashing, a concrete cap with expansion joints at ten feet on center and with sealed contact edges is acceptable.

Stone Walls: Our experience has indicated that the single most important item affecting stone wall durability is the proper anchorage of the work to some adjacent material. We have observed walls which remain standing despite incredible abuse and neglect, simply because they possessed some form of a tie-back.

Iron Door Replacement at Mound Tombs

Many of the mound tombs are missing iron entry doors. Frequently, these have deteriorated to such an extent that some form of sealing alternative has been undertaken. The existing methods are extremely varied and arbitrary. No standard exists. We recommend that, where required, all entrances within granite facades be filled in with cobblestone. Similarly, all entrances within brick facades should be sealed, if required, with brick masonry. Parging should not be used. A suitable and tasteful example of a cobblestone entrance occurs at the Phipps Street Burying Ground.

Sealing Iron Doors

We recommend that the practice of sealing iron doors with mortar and parging be terminated. Rather, an unobtrusive, mechanical, standard plate bracket, secured to the masonry with expansion bolts, should be employed.

Maintenance and Management

This section is adapted from the HBGI Master Plan report section written by the landscape architect:

Maintenance on all sites could be improved. The present number of supervisors and the size of the maintenance crews are not adequate to provide first class maintenance. However, considering the present crew size, the grounds are kept free of trash and grass is mowed regularly.

Burying Ground Keepers

The concept of "Burying Grounds Keepers" is recommended. Several individuals would be employed and assigned to two, three or four burying grounds in close proximity to each other. The keepers would provide a visible presence to improve security, but would primarily be concerned with daily maintenance. For example, this concept would work very well for King's Chapel, Granary and Central Burying Grounds in downtown Boston.

The possible combinations of burying grounds by geographical area, requiring five people (assuming all sites are opened daily) would be:

King's Chapel, Granary, Central
Phipps, Copp's Hill, Bunker Hill, Bennington Street
Eliot Street, South End, Hawes/Union
Dorchester North, Dorchester South
Westerly, Walter Street, Market Street.

The duties of the "Keepers" would be as follows:

- Open and lock gates, five days a week;
- General pick-up of trash, three times a day;
- Weeding, emergency pruning, and removal of volunteer growth;
- Leaf pick-up;
- Cleaning drainage structures;
- Painting of trash receptacles;
- Monitor and report vandalism, maintenance issues and other problems to the Parks Department.

It is recommended that a keeper be employed to cover King's Chapel, Granary and Central on a trial basis. Keepers should only be employed at grounds that are opened daily.

Lawn Maintenance

The routine removal of grass in the immediate vicinity of gravestones and tombs caused the most serious damage to markers within all the burying ground sites. The best current solution is to mow with lawn mowers to within 12-inches of gravestones and tombs, and then to use "weed-whackers" with nylon whips to trim up to the markers. Hand trimming is not feasible with the present or even future potential maintenance crews, nor is edging of lawn by hand to maintain a vegetative-free zone around gravestones. Use of chemical vegetation control is out of the picture. Realistically, this leaves the current mowing/weed-whackers solution as the best and most economically feasible.

The proposed schedule, which is an ideal and not a reality, is as follows:

- mowing every five days - May to mid-June;
- mowing every ten days - mid-June to mid-August;
- mowing every five days - mid-August to end of the season.

Increasing the Parks and Recreation Department's maintenance budget seems to be the only way to reach this ideal.

An alternative solution, not mowing at all (or mowing just once or twice a year) has potential only in locked grounds with a low visitor population. However, removal of grass adjacent to the gravestones becomes more difficult the longer and thicker the grass grows, which could potentially cause more damage to stones.

Seeding with new, slow-growing strains of grass now on the market, is also a potential solution. This should be tested.

Lawn areas should be fertilized at a minimum of twice yearly and limed every two to three years to maintain a healthy lawn. This turf maintenance work should be either contracted out by the City, or done by City crews.

Standard application for lawn fertilizers is as follows:

Fertilizer Type	Date of Application and Pounds applied per 1,000 square feet	
	April 1	September 1
20-10-5; 20-6-4 (or similar analysis)	5-7 lbs	4-5 lbs
10-6-4; 10-5-5 (or similar analysis)	10-12 lbs	6-8 lbs
8-6-4; 8-6-2	15-20 lbs	10-15 lbs

Note: Choose only one of the above fertilizing types for use during any one growing season. Check formula with stone conservator before application.

Ground limestone should be applied to bring lawn areas to desired 6.0-6.5 pH level. Rate of application should be determined by soil tests. This rate of application of ground limestone should not exceed 75 pounds per 1,000 square feet at any one time, with at least 30 days between applications to bring the pH to the desired level. Lime should be applied either in early spring or late fall, with early spring (April) being preferred.

Grading and reseeding of lawn areas should be done in the fall. Regrade any mound or depression in lawn areas, unless tomb-related, which inhibit proper drainage of the area. These areas are to be smoothly blended into surrounding grades, scarified and seeded with a slow-growing shade mix. Watering lawns during the dry months of summer, does not appear to be a realistic possibility given the current budget and crew size. The installation of irrigation systems in all the burying grounds would be costly and could be very damaging to gravestones. We recommend that irrigation systems not be installed.

Tree Maintenance

Maintaining healthy trees is the goal, free of dead limbs which could potentially fall and injure visitors, or gravestones and tombs. Ideally, trees should be pruned to remove dead wood on a yearly basis, but regular pruning every two to three years by trained arborists under contract to the Parks Department is acceptable. Trees should be fertilized every two or three years and could be contracted at the same time as the pruning. Pruning of trees should only be done by Parks Department crews during an emergency situation, such as when it is a question of public safety.

Volunteer weed tree growth should be removed on a yearly basis during the summer months when frequency of mowing is reduced and Parks crews have the time. If growth is in conflict with gravestones or tombs, extreme care should be exercised to not damage the markers.

Removal of dead trees should be done by trained arborists during the pruning contract. The tree should be cut as close to the soil as possible and root and stump left in place to decompose. In cases where gravestones are being dislocated or engulfed by tree trunks or roots, the gravestones should be moved to a new location, to prevent additional damage.

General Cleaning

Ideally, leaves, paper, trash, or other debris should be removed on a weekly basis, or at least every ten days, and one to three times per day in heavily visited sites in peak tourist season. A neglected appearance seems to encourage vandalism or additional trash dumping. Trash collection from receptacles should be done daily, which is presently the schedule, or more often as necessary.

Brick, Granite or Concrete Block Pavements

Where paving units have settled or have been removed, the base must be corrected to proper level with the addition of new base material to match the existing level. The new base should be firmly compacted. When the paving units are reset or replaced over previously settled areas, they should meet line, grade and pattern of surrounding pavers.

Edging

Brick or precast concrete edging that is too high or low, out of alignment or missing, should be replaced or reset according to proper alignment and depth. The existing base material should be replaced to full depth and compacted. Any local depressions in grading adjacent to edging should be corrected and blended into surrounding grades. Add topsoil to a depth that will blend into surrounding grades and then reseed.

Site Drainage

Catch basins, manholes and drainage culverts should be cleaned at least once a year, or more often as required. All piping should be cleaned at least every five years or more. All mud, leaves, and other debris should be removed. Any masonry fractures in the drainage structures should be repaired.

Trash Receptacles

Trash receptacles should be repainted, repaired, or replaced on a yearly basis.

Signage

A signage study should be done of regulatory, informational and interpretive signs as an immediate priority. All existing signs should be inventoried and analyzed and replaced with a unified sign system.

Orientation and informational signage at the entrance of each burying ground is a preliminary recommendation. Special consideration should be give to restoring the decorative path sign systems at Dorchester North and Bennington Street Burying Grounds.

Implementation

IMPLEMENTATION

Progressing from a completed master plan to hands on work in the burying grounds requires effort. Matching funding sources with priorities, then performing the work in phases will be standard for any but the smallest of cemetery preservation projects. Specific administrative factors will vary, depending on the agencies and organizations which have jurisdiction over ownership, management, permit administration, design review, and funding.

Contracting Procedures

Due to its municipal status, the Boston Parks and Recreation Department follows standard City procedures for contracting capital improvements. A bid packet, consisting of detailed plans and specifications, is prepared by a designer such as a landscape architect or structural engineer. The bid process consists of public advertisement, submittal of sealed bids, selection, and contract award. Boston's Historic Burying Grounds Initiative has supplemented these procedures to respond to the extraordinary nature of cemetery preservation work and assure accountability to outside funding sources.

The Boston Parks and Recreation Department had already established a non-profit 501(c)(3) corporation called the Fund for Parks and Recreation in Boston to oversee administration of grants and other outside contributions. The Fund is employed for many programs, including the Historic Burying Grounds Initiative. Administration of the Fund is provided by the City of Boston Trust Office as well as by the Parks and Recreation Department to ensure the intended use of all contributions.

Grave marker conservation craftsmanship is an emerging field. In Boston's experience, building restoration companies, monument companies, and general masons are not inclined to bid on small city gravestone repair projects utilizing specified, and sometimes unfamiliar, treatments. The Fund has instituted a program for training and employing gravestone conservation specialists. We have hired stone sculptors with some architectural conservation experience, with a reverence for the material, an appreciation of the carver's art, and with the skills to perform the labor-intensive, exacting work. One consultant conservator for HBGI (based in New York) has come to Boston to lead conservation team treatment training workshops at the beginning of projects, and has been available for further telephone and/or site consultation during the course of the work.

Currently, BPRD does not have the maintenance capacity to reset gravestones in-house. Community-based landscape firms have been contracted to do resetting projects that are too small to be effectively bid through the standard City procedure.

Notable direct and indirect benefits result from the unique requirements of burying ground preservation. The Boston Parks and Recreation Department has made contact with new consultants (including landscape architects and structural engineers and masonry conservators) through HBGI. Local artists, landscape contractors, and masons have acquired preservation skills to add to their resumes. Donors can choose appealing projects such as stone conservation, interpretive signage, or landscaping programs, and they can contribute knowing that the city is a partner capable of administering innovative, high-quality, efficiently-run projects.

Phasing

Because Boston has 16 burying grounds, comprehensive preservation by stages has been an extremely important planning consideration. Below are the criteria used to determine what Boston needed to do first, what could wait, and for how long. The criteria were developed by the master plan landscape architect and the structural engineer. The criteria apply to stone conservation as well.

HBGI Priorities

Urgent Issues: Urgent issues are those which in the consultant's opinion are life-threatening or need to be corrected within one year to avoid a permanent loss of important historic fabric. For example, such a situation occurs at the Eliot Burying Ground where a puddingstone perimeter retaining wall of approximately six feet in height, with tombs behind it, leans excessively outward over a sidewalk.

Immediate Issues: An existing condition is classified as in need of immediate attention if repair can be delayed at least three to five years, and if any one of the following situations are encountered:

- The security of the cemetery is in question, but delay would not lead to accelerated loss of important historic fabric;

- Lack of repair or attention to a particular item would accelerate damage and lead to far more extensive costs;

- The life of the item is not expected to exceed three to five years in its present state;

- Lack of repair or replacement detracts significantly from the cemetery's appearance;

- Lack of repair or restoration could lead to some loss of historic detail.

For example, repair of the Bennington Street mound tombs is considered an immediate issue because these show significant vandalism by graffiti and are in an advanced stage of deterioration.

Future Issues: Cosmetic repairs or other issues which can be delayed for at least five years are classified in this category. For example, replacement of all existing chain-link fences with new steel picket fences is an important issue for the overall quality and character of the burying grounds, but it can be delayed for five years.

Fundraising Strategy

Citizens and donors often question the importance of burying ground preservation. The extremes of their concerns are: "Who cares about cemeteries when people need homes, food and adequate schools?" ...and..."You mean our national legacy is in danger?"

In fact, although burial sites are protected from archaeological disturbance by state and federal law, most inactive cemeteries exist without the means to monitor their protection, let alone provide for preservation. Endowments for inactive cemeteries are not common, and perpetual care, if it exists at all, is likely to be limited to minimal, routine maintenance of the grounds.

In Boston at this time, the City has been able to allocate $1.25 million to capital improvements in the historic cemeteries, over a five-year period (through 1990). The $250,000 available annually is targeted for "urgent" issues of health and safety, used to date to address open tombs and unstable retaining walls. Although the City's commitment to cemetery preservation is firm, the funding available is only enough to address a few of the most pressing needs each year.

BPRD has built a fundraising strategy around the Master Plan for the Historic Burying Grounds Initiative. The plan itself provides the basis for developing both annual City capital improvement budgets and grant proposals. The master plan acts as a prospectus and shows potential supporters that HBGI is a solid, well-conceived venture.

The case for public/private partnerships to preserve publicly-owned cultural resources is a strong one. At this time, state and federal preservation monies are limited and applying for them is highly competitive. Formulating a creative approach to the preservation of any burying ground must begin at the local level.

Stewardship

Boston has taken the high ground in using professional, paid consultants and contractors to implement the Historic Burying Ground Initiative. This is a function of staff resources, standard municipal procedures, and a conviction, born of experience, that volunteers should not be asked to perform as professionals. However, volunteers in the form of "Friends"--community groups focused on support functions for maintaining a particular burying ground--are as important to HBGI as are the City and its contractors.

Boston's "Friends" groups reflect the community around different cemeteries, and they vary widely from one to another (See Appendix V). Several support seasonal clean-ups. Others are interested in giving tours and planting trees and bulbs. Some have helped with resetting and fragment collection. Downtown "Friends" are somewhat different. Private institutions have helped sponsor receptions and luncheons aimed at increased public awareness and fundraising, often primed with their own substantial contributions. Abutters have helped with daily maintenance of two burying grounds on the Freedom Trail. All serve in being the eyes and ears of the Parks Department when something needs immediate attention at a given site. What all "Friends" have in common is a commitment to help with good stewardship.

Appendices

GENERAL GLOSSARY

With thanks to Lynette Strangstad and The Association for Gravestone Studies for assistance in compiling this glossary.

Cemetery:	Derived from Greek word for sleeping chamber; a place set apart for burying the dead. Used beginning in the nineteenth century.
Conservation:	The technical science of stabilizing, repairing and restoring material objects. A conservator is a professional with specialized training in this field.
Grave Marker:	A general term used for all gravestones (headstones and footstones), tomb markers and other memorials within a cemetery site.
Graveyard:	An early cemetery; also burying ground, burial ground. Used for seventeenth and eighteenth century places of burial.
Preservation:	Used as the umbrella term for activities that protect and/or renew historic sites and resources.
Reconstruct:	To reproduce something that is no longer extant.
Rehabilitation:	To renew or refurbish condition, often combining original appearance or design with adaptations to contemporary uses or modern repair techniques.
Repair:	To put into good or sound condition after damage or the effects of wear and tear, not necessarily by using original techniques or materials.
Restore:	In technical preservation terms, to strictly bring back the original design and condition, particularly using original materials and techniques.
Stabilize:	To greatly slow down the processes of material deterioration.

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BOSTON HISTORIC BURYING GROUNDS INITIATIVE PHOTOGRAPHIC INVENTORY METHODOLOGY

A systematic photographic inventory of every grave marker within a burying ground site is essential to provide a visual record that supplements a written inventory, to enable effective planning of a grave marker conservation program, and to identify/replicate markers subsequently stolen or irretrievably damaged.

Organization

Ideally, photographic recording of grave markers should take place in conjunction with a written inventory, with marker locational numbers appearing in each photo and cross-referenced to an up-to-date map of the site. Due to limited resources and a priority to assess conditions in a detailed manner preceding gravestone conservation, the reports of the Boston burial grounds most often began with the written inventory. Other communities may find it more useful to begin with the photographic inventory.

Due to the nature of a grave markers' shallow-carved flat surface, the most successful photographs are taken with bright sunlight washing across the stone's face from the side at an angle of no more than 30 degrees, as is shown in the accompanying illustrations. Details of the carved decoration, inscription and condition will be washed-out on back- or front-lit markers, or in photos taken under hazy, cloudy or snow-cover conditions. The sun's angle is most favorable for each grave marker for only about 1 1/2 hours each day, so the photographer should plan ahead, taking note of marker orientation in the burying ground to take advantage of available light.

Equipment and Techniques

Mirror - By using a large (20"x 60") mirror to reflect sunlight at the desired angle onto badly-lit or tree-shaded markers, the photographer can avoid complete dependence on sunlight. The mirror can be positioned to direct light onto markers from as far away as 100'. See accompanying illustration of a model frame and bracing that can be built to specifications at frame shops. Precautions should be taken to avoid breakage by not shooting on windy days.

Numbering System - To facilitate cross-referencing to the forms, marker photographs should include locational numbers assigned in the written inventory. Methods vary - in Boston graveyards, small blackboards, erasable signs utilizing special magic markers or crayons, cardboard signs mounted on wire supports have all been used. Whatever the method, the letters and numbers should be at least 1 1/4" x 3/4" to be seen clearly in the photographic print.

Camera - Any good 35 mm camera using black-and-white Tri-X film at 1/250 or 1/500 shutter speeds will produce photos suitable for inventory purposes. At these speeds, a tripod is not necessary. For detail shots, use a close-up or macro lens. Auto-focus cameras may read too much light from light-colored markers. Light meters should be held close to marker while reading, as should camera-contained meters. The camera should be positioned to fill the frame with marker and number; the sides of the marker are parallel with sides of frame. This usually means crouching or lying on the ground in front of the grave marker - beware of broken glass and dog droppings! Assemble broken markers on the ground whenever possible, to show original shape and relationship of fragments.

HISTORIC BURYING GROUNDS INVENTORY FORM

Loc./Ref.No. DN/C-35

PEARCE ANN
last first middle

Record Date 6/10/86

Weather sunny

Examined by SL

Date 12/31/~~19~~1695

Motif:
[✓ 1.] Skull
2.Face
3.Urn/Willow
4.None
5.Other:

2d Motif:
1.Hourglass
2.Crossbones
3.Coffin
4.Tools
5.Other:

Border:
1.Typical
[✓ 2.] Elaborate
3.Simple
4.Plain
5.Other

Carving:
[✓ 1.] Mint
2.Clear but Worn
3.Mostly Deciph.
4.Traces
5.Illegible

Shoulder:

Marker Type: [✓ HS] FS T M Other:

Orientation: N W E [✓ S]

Materials: [✓ 1.] Slate
2.Granite
3.Marble
4.Sandstone
5.Brick
6.Other

Rating: 1.
2.
3.

Dimensions: W 11" H 12 D 2

Bedding: =

Plot Description: grassy

CONDITIONS

Soiling:
Stains:
Efflorescence:
Graffiti:
Biological Activity:
Erosion:
Blistering/Flaking/[✓ Scaling]: along edges of borders
Delamination:
Cracking:
Tilted/Fallen/[✓ Sunken]: but not deeply
Open Joints:
Fragmented:
Losses: rather large chips off top
Other Damage: ms

Previous Repair

Fills/Replacements:
Adhesive Repair:
Reinforcing:
Coatings:
Enframements/Footings/Beds:
Other:

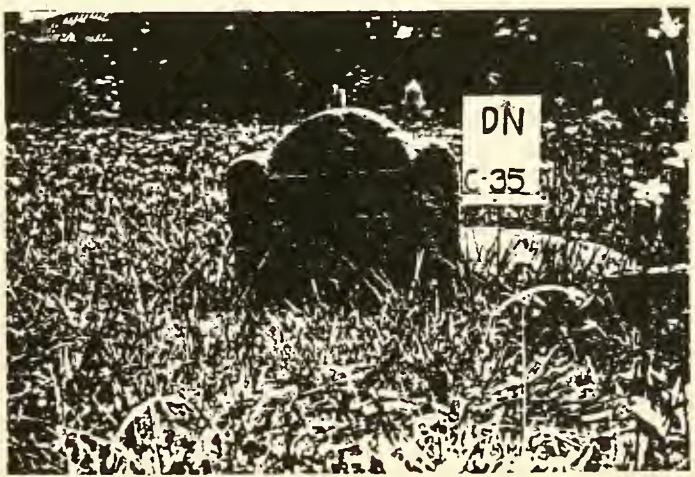

Photo Date: 4·22·87

Negative # Roll49 · #32

Backboard - The photographer may elect to eliminate distracting background elements by using a specially constructed backboard with any medium color Formica mounted on 1/4" plywood. Padding should be used between the board and marker to prevent damage.

Cleaning - Only soft-bristled brushes, not wire brushes, should be used to remove soil that interferes with legibility of the grave markers. Several spray bottles of (plain) water are necessary, as water hook-ups and hoses are not always available on-site.

Recommendations

A team of two or more people is ideal for this type of photo inventory project. Each individual, equipped with camera, mirror and other necessary equipment, can assist with mirror-lighting and backboard positioning. The team approach also addresses the security factor of having company in a large graveyard.

In New England burying grounds, photographic inventories should be scheduled for the summer season, as with a written inventory, to take advantage of a maximum number of sunny, windless days. Allow extra time for bad weather days; supplement project with indoor activities - research, photo-cross-referencing, review of forms and maps, etc.

Archival Management

After photographs are printed, they are attached to corresponding written inventory forms. Negatives should be stored separately from the inventory forms, in acid-free folders. Label the negative folders with grave marker location numbers and roll numbers; also record these roll numbers on inventory forms, along with photo date.

BOSTON HISTORIC BURYING GROUNDS INITIATIVE

FRAGMENT COLLECTION METHODOLOGY

Collecting loose gravestone fragments is an important element of any burying ground conservation program. The objectives of a fragment collection program are to improve the appearance of the burying ground site, thereby discouraging vandalism and littering; to safeguard 'walkable' fragments which, once detached from the original grave marker, are susceptible to loss by theft or damage by mowers and vandalism; and to facilitate the assembly of incomplete stones. Gravestone fragment collection also protects historical information resources - small footstones can be fragment-sized, and are a valuable source of historical/genealogical information - stored stones are available for research.

Criteria For Fragment Collection (Removal From Site):

The fragment must be completely detached from its original gravestone or out of the ground. Storage space limitations will dictate the sizes of fragments to be removed, i.e. (for Boston's historic burying grounds):

Maximum size	12" x 18"
Minimum size	1 1/2" x 1 1/2" x 1/2"

However, if a fragment bears any inscription or carving, then even tiny fragments are collected. If scheduled for repair in the near future, large fragments should remain on site; small pieces fitting above criteria should be collected, and stored separately for easy access during conservation process.

In Boston graveyards, headstones, footstones or fragments that are loose when rocked but still vertical in the ground, large gravestone fragments that cannot be lifted easily by one person, or tiny uncarved fragments that are unrelated to any nearby marker, are not collected. This is a function of the large number of sites and gravestones, and limited storage capacity.

Any out-of-the-ground fragments remaining on-site, due to large size or impending repair work, should be positioned either in a vertical, stable position against its own base, or behind a stable, in-the-ground gravestone nearby, to avoid lawnmowere and feet. Position fragment with carving side "in" and back visible - partially buried if possible. If large stones must lie flat, place in or near row, carving side down.

Recording: Before any fragment is removed from the site, a Gravestone Fragment Record form is filled out for each fragment or group of related fragments, including a quick sketch of fragments and their relationship to original gravestone, if known. The form contains such information as the date of collection, the collector's name, and the indentifying location number from the burying ground's written inventory and map. If the fragment has not been included in the written inventory, append to the nearest gravestone by its number (i.e., CH/A-345a), and note original or probable location if known. Record number on form and on fragment, using masking tape on reverse side from carving. Also note proposed repair on form, if applicable, and attach photo of fragment.

Photographic Recording: To photograph fragment, clean fragment to show detail; place small blackboard with location number, and ruler in photo. Fill frame with subject, including location number, identification. Use backboard to eliminate background distraction. Use a large mirror to direct light onto difficult-to-see fragments. Photograph related fragments together; if fragment fits into an existing marker, photograph fragment in place, if possible. If location number is not legible in print, use indelible pen and small sticker to identify (use reverse if sticker will cover part of photo). Attach black and white print to front of corresponding form with transparent, non-shiny adhesive tape. Do not obscure any information.

Protection (Handling fragments on-site and in-transit): When removing fragments, secure to prevent slinding or shifting which could damage edges or scratch the stone surfaces. Every precaution to prevent breakage or loss of material should be taken. Use wooden pallets and separators at storage facility to keep stones from touching; small fragments are protected in ventilated boxes.

THE FRIENDS OF DORCHESTER CEMETERIES
STATEMENT OF PURPOSE

Dorchester's Old North Burying Ground, located at Upham's Corner, was laid out in 1634 and served as the early town's principal place of interment for nearly two hundred years. South Cemetery on Dorchester Avenue was created in 1814. Both burying grounds are now under the jurisdiction and care of the City of Boston's Parks and Recreation Department. Other cemeteries in Dorchester include the Second Church Burying Ground and St. Mary's Roman Catholic Cemetery, both under the supervision of legally formed corporations.

The Friends of Dorchester Cemeteries is a group under the auspices of the Dorchester Historical Society, Inc., which, while recognizing the City's custodial role in maintaining the Dorchester historic burying grounds, was formed out of concern that these places return to a semblance of their former vital and integral status in the town as park-like spaces which, without jeopardizing their sacred function, can be enjoyed by the community. Although heartened by the accomplishments of the Boston Historic Burying Grounds Initiative, we acknowledge that this ambition will require significant citizens' action to achieve.

The Friends of Dorchester Cemeteries, toward the goal of revitalizing Old North Burying Ground and South Cemetery, and to insure the tangible connection between America's ancestral heritage and our posterity that these places embody, will:

1. Organize on-going community assistance in a program of beautification through landscaping and trash removal.

2. Promote the study and appreciation of these sites and the valuable cultural legacy and genealogical resource represented by their grave and tomb markers, memorials and mausoleums through education, documentation projects and public press.

3. Working in conjunction with, and under the guidance of, officials in the Parks and Recreation Department and whatever persons employed in its restoration master plan or routine upkeep, advocate and take steps to procure such services and devices that will preserve the cemeteries and protect them for the future. Attention will be focused on:

    a. necessary security measures to deter vandalism and discourage misuse of the cemeteries;

    b. gravestone repair, conservation, replacement, and recording to guard these museums-without-walls from damage and loss;

    c. rehabilitation of existing structures and installation of needed amenities to aid and facilitate improved maintenance;

d. and the planting of decorative shrubs, trees and flowers to create an attractive atmosphere within the cemeteries and adjacent areas to encourage neighborhood pride and participation.

Activities of the Friends will be directed by the Cemetery Committee of the Dorchester Historical Society, whose members will act as liaison with City representatives in matters of shared responsibility. The Friends do not intend by their endeavors to supplant or hinder the City's lawful obligation with regard to burying ground care and control, but will, within the restrictions of established policy, assist whenever possible to attain the goals outlined in this STATEMENT throughconsultation, fundraising, research, and gathering and deploying individuals and groups of volunteers in tasks deemed appropriate to achieving these ends.

It is hoped that the efforts of Dorchester residents (and descendants) to improve the visibility and condition of important early sites in their town will evidence a continued interest and commitment to the ideals in this STATEMENT and serve to cement a successful working partnership between the City of Boston and The Friends of Dorchester Cemeteries.

Excerpt from Bylaws of
THE FRIENDS OF COPPS HILL BURYING GROUND, INC.

Article III, Sec. 1. - The purpose for which the corporation has been formed is as follows:

(a) To preserve historic Copps Hill Burying Ground for present and future generations in memory of the men and women upon whose sacrifices, honor and courage this nation was founded.

(b) To promote awareness and respect for Copps Hill Burying Ground and other historic landmarks in the neighborhoods of Boston.

(c) To encourage the efforts of individual citizens and community groups to maintain and preserve Copps Hill Burying Ground and other memorials, monuments and sites of historical significance.

(d) To enhance the preservation of Boston's historic and unique urban environment.